

0108-354 US-1
Amendment dated 12/27/2010

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Reply to office action mailed 06/24/2010

REMARKS

Claims 1-15 are currently pending in the application. The claims have not been amended in anticipation of an interview scheduled for January 5, 2011. The foregoing separate sheets marked as "Listing of Claims" show all the claims in the application, with an indication of the current status of each.

The Examiner maintains rejection of claims 1, 3-5, 7, and 11-14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,979,304 to Nijenbanning et al. ("Nijenbanning") in view of U.S. Patent No. 6,462,431 to Woo. The Examiner maintains rejection of claims 6, 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over Nijenbanning and Woo in view of U.S. Patent No. 6,184,797 to Stark et al. ("Stark") and further in view of U.S. Patent No. 7,235,058 to Doty. The Examiner maintains rejection of claim 10 under 35 U.S.C. §103(a) as being unpatentable over Nijenbanning, Woo, Stark and Doty as applied to claims 1, 6 and 8, and further in view of U.S. Patent Application Publication No. 2002/0183673 to Naft et al. ("Naft"). The Examiner maintains rejection of claim 15 under 35 U.S.C. §103(a) as being unpatentable over Nijenbanning and Woo as applied to claims 1, 11 and 13, and further in view of Stark.

The Examiner makes the following statements in response to the applicant's prior arguments:

Applicant's argument:

"It cannot be argued that there is 'common sense' in reaching to the prior art of bicycle theft prevention techniques to find a teaching that, at a high level of abstraction, happens to characterize user monitoring of "locking" of a prosthetic device. This reaching to an unrelated prior art, without any supportive reasoning, simply confirms the hindsight bias of the Examiner's obviousness determination." (Applicant's 05/24/2010 response, page 13)

Examiner's Response:

"Applicant argues Nijenbanning and Woo are substantially unrelated and one of ordinary skill in the art would not have look[ed] to the Woo reference in order to modify the Nijenbanning orthopedic aid with a means for

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detecting a locking state, as taught by Woo. One could conclude that Nijenbanning and Woo are unrelated types of art because Nijenbanning teaches an orthopedic device and Woo teaches remote locking system for a bicycle. However, they are related because both devices involve using a remote to lock and unlock a device." (Emphasis supplied; Office Action mailed 06/24/2010, page 2)

It is requested that the Examiner reconsider his argument, in view of the following passage in the applicant's disclosure:

"To get to a rest position, the locking device has to be unlocked. In known orthotic knee joints, this is done, for example, by means of a Bowden cable with which the locking device can be unlocked, so that the knee joint can be flexed, for example in order to allow the patient to get to the seated position. After the patient stands up, the orthotic knee joint has to move back into the extended, locked position. If the locked position is not reached and the patient fails to notice this, there is a considerable risk of an accident happening since, when a load is placed on the orthotic knee joint that is assumed to be locked, the latter may buckle, and the buckling cannot be controlled by the patient because of the weakness of the joint. As a result, the patient may suffer a fall. For this reason, the patient has to pay particular care to ensure that the orthopedic aid is in fact really locked, for example by waiting for a sound, which indicates that the locking device has engaged, before placing any load on the aid.

SUMMARY OF THE INVENTION

"The present invention starts out from the problem that, as a result of a certain degree of carelessness on the part of the user of the orthopedic aid, it is not ascertained whether the locking device is definitely locked, and, consequently, there is a risk of an accident happening. The object of the present invention is therefore to avoid, as far as possible, a situation in which the wearer of the orthopedic aid is adversely affected by incomplete locking of the parts of the aid with respect to one another.

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"Starting out from this problem, an orthopedic aid of the type mentioned at the outset is distinguished, according to the invention, by the fact that at least one signaling arrangement is provided which emits a particular signal for the locking state or upon unlocking of the locking device." (Emphasis supplied)

It will be observed that the applicant's reasoning begins with the prior art reliance upon user detection of the locked or unlocked state of the device. Note the highlighted portion of the text reprinted above. Consequently, the need uncovered by the present inventor was not lack of user ability to detect the state of the device, but rather the insufficiency of this reliance because it requires that the patient "pay particular care to ensure that the orthopedic aid is in fact really locked" and, consequently, "as a result of a certain degree of carelessness on the part of the user of the orthopedic aid, it is not ascertained whether the locked device is definitely locked, and, consequently, there is a risk of accident happening."

The Examiner's obviousness argument – against the applicant's argument that the references are unrelated and therefore connecting them is hindsight – asserts that the references "are related because both devices involve using a remote to lock and unlock a device". HOWEVER, THE EXAMINER HAS CITED NO PRIOR ART FOR A REMOTE; IT IS ONLY THE APPLICANT'S DISCLOSURE THAT PROVIDES THE REMOTE AND ALLOWS THE EXAMINER – NOT ONE SKILLED IN THE ART AT THE TIME – TO MAKE A CONNECTION TO THE WOO REFERENCE. This confirms the hindsight character of the Examiner's argument.

It should be emphasized that the present inventor sees the present invention as filling a need in the prior art that is distinct from what was known in the prior art. In the prior art (– which is, and remains, unrelated to Woo –) the patient was able to determine whether the orthopedic aid was locked or unlocked. The deficiency of the prior art was the diligence required of the patient and the consequent possibility of an accident from "a certain degree of carelessness on the part of the user of the

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orthopedic aid.” Thus the prior art demonstrated to the present inventor a need for a safety improvement, which the present invention satisfies by means of a signaling arrangement which automatically confirms the user’s own detection of the state of the device, or alerts the user when the user fails to notice the locking or unlocking of the device.

This is a much different situation than is suggested by Nijenbanning. Nijenbanning is clearly related to the art of the present invention, providing a hinge device that automatically unlocks to allow natural swinging of the lower part of the leg when weight has been transferred to the opposite leg. This is related to the present invention because both Nijenbanning and the present invention involve prosthetic devices and, more particularly, prosthetic devices for the leg. One skilled in the art of such prosthetic devices would reasonably be presumed to know of the Nijenbanning reference.

On the other hand, one skilled in the art would not find in Nijenbanning a description or suggestion pertaining to the aspects of the present invention at issue, namely, detecting the locking state and alerting the user to the locking state. It is reasonably evident why this is so. Nijenbanning discloses a novel mechanism for stabilizing the knee joint only when it is necessary to place weight on the leg, allowing the leg to swing normally when weight is on the other leg. This is an improvement on the prior art, which required walking with a stiff leg and unlocking the prosthesis when sitting down.

It is to be noted that aspects of this improvement were already known in the art, as Nijenbanning pointed out in the background section. It was old in the art to unlock the joint at the start of the swinging stage (col. 1, lines 50-51). Further, the prior art disclosed locking the joint upon detection of stress, for example, upon the heel (col. 1, lines 53-55). However, this technique is disadvantageous because the joint is unlocked in the absence of stress upon the heel, leaving the user vulnerable to collapse and injury if there is stress from another quarter, such as the front of the user’s foot (col. 1, lines 62-65). Other prior art disclosed changing the state of the

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hinge based on the presence of axial force on the hinge (col. 2, lines 6-8), or turning the foot relative to the leg (col.2, lines 13-14), although this requires the user to be prepared to turn the foot at every step (col. 2, lines 20-21).

Nijenbanning claims as novel a hinge release and locking technique that is automatic during walking, invoked by gravity in coordination with the movement of the leg while the user is walking. The Examiner does not, of course, rely upon this feature of the Nijenbanning disclosure. Indeed, the only features relied upon are those which are admitted to be old in the art, even by Nijenbanning. Yet, as with Nijenbanning, it is necessary to include these features in the claim because they provide the context for the invention. These contextual and non-novel aspects are an orthopedic aid, used for walking and providing a support function, comprising two parts movable relative to one another and a device for locking the two parts relative to one another. These features do no more than describe the context of the invention.

In addition to the gravity operated mechanism for coordinating locking and unlocking with walking, Nijenbanning describes a manual override allowing the user to lock or unlock the hinge (col. 6, lines 31-46) with a control (item 20 in Fig. 1). Properly understood, this use of a manual control provides the user with the ability to operate the hinge control when the user “wants to be able to influence whether or not the hinge ... is locked” (col. 6, lines 32-33). It is a simple control, not dependent upon the state of the system. If the user wants to step backward, for example, the hinge can be locked (col. 6, lines 42-44); if the user wants to sit down, the hinge can be unlocked (col. 6, lines 39-42). This is the conventional state of the art.

This detail is reviewed to make it clear that Nijenbanning provides no suggestion whatsoever regarding detection of the state of the device, or alerting the user to that state. The Nijenbanning mechanism is automatic, with no need to alert the user. Indeed, avoiding any need to alert the user is a primary advantage to Nijenbanning’s automatic mechanism. One skilled in the art would have no motivation to modify Nijenbanning’s automatic mechanism in any manner that would suggest the present invention. It is questionable whether the present invention would

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be operable in the context of Nijenbanning's automatic mechanism. It is worth emphasizing that Nijenbanning teaches in the opposite direction, because in reviewing the prior art Nijenbanning found that having to alert the user (e.g. with regard to turning of the foot, col. 2, lines 19-21) was a circumstance to be avoided. The point of the automatic mechanism is precisely to avoid any need to alert the user.

Nor does the option for manual control (col. 6, lines 31-46) provide any suggestion useful to one skilled in the art for devising a safety alert for a user who failed to notice the locked or unlocked state of the device. This control described in Nijenbanning is initiated by the user, as in the prior art described in the background section of the present invention. There is no suggestion in Nijenbanning of a need to "alert" the user to the state of the device, which the user is controlling manually. Again, one skilled in the art would find no motivation to seek a mechanism for alerting the user to the locked or unlocked state of the prosthetic. No such motivation is present in Nijenbanning, or suggested by Nijenbanning.

The Examiner acknowledges that "Nijenbanning fails to disclose a means for detecting the locking state and a means for alerting a user of the locking state." Then the Examiner uses a creative argument in an attempt to show how and why the manual override mechanism could be modified so as to employ the present invention. There is a cable running from the override switch (20) to the hinge. The Examiner regards this cable as a "wired remote" and cites Woo as providing a "wireless remote." However, this logic fails to place the proper burden upon Nijenbanning, instead using hindsight thereby shifting the burden and placing reliance upon the present invention. Nijenbanning's "wired remote" is simply – and nothing more than – the prior art control of the user (e.g. the Bowden cable described in the background section of the present invention).

The Examiner uses the present invention – not Nijenbanning – to find the Woo reference. Nijenbanning uses the standard Bowden cable, which no one skilled in the art would call "remote" in the sense of suggesting, via the phrase "wired remote" a wireless controller as taught by Woo. Furthermore, this Woo teaching is

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highly abstract as regards its connection to the art of prosthetic devices. Once having made that leap, then Woo – not Nijenbanning – provides an indication of a remote signal of the state of the device. What the Examiner fails to explain – and why hindsight is likely – is how one skilled in the prosthetic arts would get from Nijenbanning to Woo. The standard Bowden cable – as used in Nijenbanning – is direct rather than “remote” and is certainly NOT wireless and has nothing to do with signaling the user about the state of the device. The concept of “wired remote” is a construction of the Examiner, and may have been useful for the Examiner to find or link Woo, but the Examiner’s search strategy does not establish what someone skilled in the art of prosthetics at the time of the invention would know.

The standard is the point of view of one skilled in the art at the time of the invention. This standard cannot be embellished by adding to it references which are uncovered by an automated search strategy into arts that would be unknown to one skilled in the prosthetic arts. The connection to the Woo reference is not well reasoned. Finding Woo relies upon the idea that a Bowden cable is a “wired remote” that could be implemented wirelessly. But this idea does not come from Nijenbanning. It must be presumed, therefore, to come from the Examiner. Then, it turns out, that the teaching of most interest in Woo is not the “wireless remote” at all, but rather the “remote signalling” (Woo, col. 3, lines 42-52). It is difficult to avoid the conclusion that this entire train of reasoning is hindsight.

It is respectfully requested that the Examiner reconsider whether one skilled in the art at the time of the invention would have found it obvious to signal the user as to the locked or unlocked status of the device. It is noted that the Examiner asserts that

“In these situations it would be advantageous to the user to know that the device is either locked or unlocked to prevent an accidental fall of the user by trying to sit when the user believes the device is unlocked, but it is actually locked.” (Office Action of 6/24/2010, page 3)

It will be observed that this statement omits the important fact that the user under the prior art already knows whether the device is locked or unlocked. The insight

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provided by the present invention is that an additional safety factor can be provided by a signal, generated from detection at the prosthetic device itself, that either confirms the user's knowledge or alerts the user when failure of the device to change state has not been noticed by the user.

Thus, the motivation provided by the Examiner is imprecise. On the one hand it avoids a key fact that would have been evident to one skilled in the art (namely, that the state of the device is known to the user) and which teaches against the need for what have been a redundant notice. Significantly, the Examiner has uncovered no prior art in the area of prosthetics suggesting a need for such redundant notice, notwithstanding many years of prior art practice that found reliance upon the user's knowledge sufficient for operation of the Bowden cable.

On the other hand, the Examiner's statement of motivation inserts the very observation that was not appreciated in the prior art of record, namely, that there is a need to attend to the situation where "the user believes the device is unlocked, but it is actually locked." This motivation is provided by the present invention, and is not present in the prior art of record. Thus the applicant maintains the conclusion that reaching for the Woo reference is hindsight.

The applicant also maintains its prior arguments regarding Nijenbanning and Woo, in particular, and the other references cited by the Examiner.

It is submitted that the §103 ground of rejection as to claim 1 is overcome, and should be withdrawn. It is further submitted that claim 1 is in allowable form over the prior art, and therefore that all the remaining claims 3-15 are also allowable because they depend from allowable claim 1.

In view of the foregoing, it is requested that the application be reconsidered, that claims 1 and 3-15 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at 703-787-9400 (fax: 703-787-7557; email: clyde@wcc-ip.com) to discuss any other changes deemed necessary in a telephonic or personal interview.

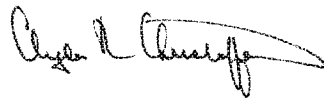
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If a further extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Clyde R. Christofferson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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